UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,852	07/11/2003	Guang Cao	2003B068	4892

23455 7590 09/23/2004

EXXONMOBIL CHEMICAL COMPANY
P O BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER	
JOHNSON, CHRISTINA ANN	
ART UNIT	**PAPER NUMBER**
1725	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/617,852	CAO ET AL.	
	Examiner	Art Unit	
	Christina Johnson	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-13,16-22,27 and 29* is/are rejected.

7)☒ Claim(s) *5,14,15,23-26,28 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Examples of corrections which should be made in response to this office action include: improper subscripts throughout the specification (i.e. "H2O" should be "H_2O"); page 8, [0023], "simethylbutylamine" should be "dimethylbutylamine;" page 8, [0026], "yeta" should be "yet a."

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 6-13, 16-22, 27, and 29 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cao et al.

Cao et al. (US 6,620,983) discloses a method of synthesizing a silicoaluminophosphates molecular sieve. The process comprises (a) forming a reaction mixture comprising a source of aluminum, a source of phosphorus, at least one organic template, and optionally, a source of silicon, and (b) inducing crystallization of an aluminophosphates or silicoaluminophosphates molecular sieve (column 4, lines 1-10). Preferably the molecular sieve is a SAPO of CHA morphology (column 4, lines 55-65). The reference teaches that the mole ratio of template to Al2O3 is preferably in the range of 1.5-3 (column 7, lines 60-65). The molecular sieve may be formulated with a binder to form a catalyst (refer to columns 9-10).

The reference teaches that suitable templates include templates comprising one or more N,N-dialkylamino moieties having the general structure:

$R^1R^2N\text{-}R^3$,

Wherein R^1 and R^2 are independently selected from the group consisting of linear or branched alkyl groups having from 1-5 carbon atoms and R^3 is selected from the group consisting of linear or branched alkyl groups having from 1-23 carbon atoms (column 2, lines 50-65). Most preferably, R^1 and R^2 are both methyl groups (column 7, lines 5-6). Preferably, R^3 is selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, n-butyl, n-pentyl, n-hexyl, n-heptyl, and these alkyl groups substituted by OH or NH_2 groups (column 7, lines 5-125).

In this case, the reference does not specifically recite the claimed subgenus "dialkylbutylamines." It has been held that when the compound is not specifically named, but instead it is necessary to select portions of teachings within a reference and combine them, i.e. select various substituents from a list of alternatives given for placement at specific sites on a generic chemical formula to arrive at a specific composition, anticipation can only be found if the classes of substituents are sufficiently limited or well delineated. *Ex parte A*, 17 USPQ 2d 1716. If one or ordinary skill is able to once envisage the specific compound within the generic chemical formula, the compound is anticipated. *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962). See also *In re Schauman*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978).

In this case, it is the position of the examiner that the reference teaches a class of substituents for R^3 which is sufficiently limited that one of ordinary skill would be able to "at once envisage" the subgenus "dialkylbutylamines." Therefore, it is the position of the examiner that the reference anticipates the instantly claims.

Alternatively, if it is considered that the teachings of the reference are not specific to constitute anticipation within the meaning of 35 USC 102, it is the position of the examiner that the selection of "butyl" for R^3 would have been obvious to one of ordinary skill in the art at the time the invention was made. If the prior art does not in fact anticipate the instant claims, then the claims would have been obvious to one of ordinary skill in the art. *Ex parte Lee*, 31 USPQ 2d. 1105.

In that case, the reference does not disclose the use of the specific compounds dialkylbutylamines, specifically, the selection of butyl for R^3. The reference teaches the

generic group of compounds, linear or branched alkyl groups having from 1-23 carbon atoms, specifically, methyl, ethyl, n-propyl, i-propyl, n-butyl, n-pentyl, n-hexyl, n-heptyl, and these alkyl groups substituted by OH or NH_2 groups. The claims differ from the reference by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species taught by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

5. Claims 1-4, 7-13, 16-22, 27, and 29 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cao et al.

Cao et al. (US 6,680,278) discloses a method of synthesizing a silicoaluminophosphates molecular sieve of CHA structure type. The process comprises (a) forming a reaction mixture comprising a source of aluminum, a source of phosphorus, at least one organic template, and optionally, a source of silicon, and (b) inducing crystallization of an aluminophosphates or silicoaluminophosphates molecular sieve (column 3, lines 30-42). The reference teaches that the mole ratio of template to Al2O3 is preferably in the range of 1-3 (column 9, lines 1-5). The molecular sieve may be formulated with a binder to form a catalyst (refer to columns 10-11).

The reference teaches that suitable templates include templates comprising one or more N,N-dimethylamino moieties having the general structure:

$(CH_3)_2N$-R,

Wherein R is preferably an alkyl group of from 1-12 carbon atoms, more preferably 1-6 carbon atoms, and most preferably 1-5 carbon atoms (column 9, lines 5-15).

In this case, the reference does not specifically recite the claimed subgenus "dialkylbutylamines." It has been held that when the compound is not specifically named, but instead it is necessary to select portions of teachings within a reference and combine them, i.e. select various substituents from a list of alternatives given for placement at specific sites on a generic chemical formula to arrive at a specific composition, anticipation can only be found if the classes of substituents are sufficiently limited or well delineated. *Ex parte A*, 17 USPQ 2d 1716. If one or ordinary skill is able to once envisage the specific compound within the generic chemical formula, the compound is anticipated. *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962). See also *In re Schauman*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978).

In this case, it is the position of the examiner that the reference teaches a class of substituents for R which is sufficiently limited that one of ordinary skill would be able to "at once envisage" the subgenus "dialkylbutylamines." Therefore, it is the position of the examiner that the reference anticipates the instantly claims.

Alternatively, if it is considered that the teachings of the reference are not specific to constitute anticipation within the meaning of 35 USC 102, it is the position of the examiner that the selection of "butyl" for R would have been obvious to one of ordinary skill in the art at the time the invention was made. If the prior art does not in fact

anticipate the instant claims, then the claims would have been obvious to one of ordinary skill in the art. *Ex parte Lee*, 31 USPQ 2d. 1105.

In that case, the reference does not disclose the use of the specific compounds dialkylbutylamines, specifically, the selection of butyl for R. The reference teaches the generic group of compounds, an alkyl group of from 1-12 carbon atoms, more preferably 1-6 carbon atoms, and most preferably 1-5 carbon atoms. The claims differ from the reference by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species taught by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

6. Claims 1-4, 7-13, 16-22, 27, and 29 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cao et al.

Cao et al. (US 6,793,901) discloses a method of synthesizing a silicoaluminophosphates molecular sieve of CHA structure type. The process comprises (a) forming a reaction mixture comprising a source of aluminum, a source of phosphorus, at least one organic template, and optionally, a source of silicon, and (b) inducing crystallization of an aluminophosphates or silicoaluminophosphates molecular sieve (column 3, lines 35-55). The molecular sieve may be formulated with a binder to form a catalyst (refer to columns 10-11).

The reference teaches that suitable templates include templates comprising one or more N,N-dimethylamino moieties having the general structure:

$(CH_3)_2N$-R,

Wherein R is preferably an alkyl group of from 1-12 carbon atoms, more preferably 1-6 carbon atoms, and most preferably 1-5 carbon atoms (column 8, lines 10-25).

In this case, the reference does not specifically recite the claimed subgenus "dialkylbutylamines." It has been held that when the compound is not specifically named, but instead it is necessary to select portions of teachings within a reference and combine them, i.e. select various substituents from a list of alternatives given for placement at specific sites on a generic chemical formula to arrive at a specific composition, anticipation can only be found if the classes of substituents are sufficiently limited or well delineated. *Ex parte A*, 17 USPQ 2d 1716. If one or ordinary skill is able to once envisage the specific compound within the generic chemical formula, the compound is anticipated. *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962). See also *In re Schauman*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978).

In this case, it is the position of the examiner that the reference teaches a class of substituents for R which is sufficiently limited that one of ordinary skill would be able to "at once envisage" the subgenus "dialkylbutylamines." Therefore, it is the position of the examiner that the reference anticipates the instantly claims.

Alternatively, if it is considered that the teachings of the reference are not specific to constitute anticipation within the meaning of 35 USC 102, it is the position of the

examiner that the selection of "butyl" for R would have been obvious to one of ordinary skill in the art at the time the invention was made. If the prior art does not in fact anticipate the instant claims, then the claims would have been obvious to one of ordinary skill in the art. *Ex parte Lee*, 31 USPQ 2d. 1105.

In that case, the reference does not disclose the use of the specific compounds dialkylbutylamines, specifically, the selection of butyl for R. The reference teaches the generic group of compounds, an alkyl group of from 1-12 carbon atoms, more preferably 1-6 carbon atoms, and most preferably 1-5 carbon atoms. The claims differ from the reference by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species taught by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-4, 6-13, 16-22, 27 and 29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-41 of U.S. Patent No. 6,620,983. Although the conflicting claims are not identical, they are not patentably distinct from each other.

US 6,620,983 claims a method of synthesizing a silicoaluminophosphates molecular sieve. The process comprises (a) forming a reaction mixture comprising a source of aluminum, a source of phosphorus, at least one organic template, and optionally, a source of silicon, and (b) inducing crystallization of an aluminophosphates or silicoaluminophosphates molecular sieve (claim 1 and claim 4). Preferably the molecular sieve is a SAPO of CHA morphology (claim 14-15). The reference teaches that the mole ratio of template to Al2O3 is greater than 1.5 (claim 13). The molecular sieve may be formulated with a binder to form a catalyst (claims 25-30).

The reference teaches that suitable templates include templates comprising one or more N,N-dialkylamino moieties having the general structure:

$R^1R^2N\text{-}R^3$,

Wherein R^1 and R^2 are independently selected from the group consisting of linear or branched alkyl groups having from 1-5 carbon atoms and R^3 is selected from the group consisting of linear or branched alkyl groups having from 1-23 carbon atoms (claim 4 and claim 15). R^1 and R^2 may both be methyl groups (claim 5). R^3 is selected

from the group consisting of methyl, ethyl, n-propyl, i-propyl, n-butyl, n-pentyl, n-hexyl, n-heptyl, and these alkyl groups substituted by OH or NH_2 groups (claim 5).

The instant claims differ from the claims of '983 in that '983 does not claim the use of the specific compounds dialkylbutylamines, specifically, the selection of butyl for R^3. The reference claims the generic group of compounds, linear or branched alkyl groups having from 1-23 carbon atoms, specifically, methyl, ethyl, n-propyl, i-propyl, n-butyl, n-pentyl, n-hexyl, n-heptyl, and these alkyl groups substituted by OH or NH_2 groups. The claims differ from the claims of '983 by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species claimed by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

9. Claims 1-4, 7-13, 16-22, 27 and 29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-38 of U.S. Patent No. 6,680,278. Although the conflicting claims are not identical, they are not patentably distinct from each other.

US 6,680,278 claims a method of synthesizing a silicoaluminophosphates molecular sieve of CHA structure type. The process comprises (a) forming a reaction mixture comprising a source of aluminum, a source of phosphorus, at least one organic template, and optionally, a source of silicon, and (b) inducing crystallization of an aluminophosphates or silicoaluminophosphates molecular sieve (claims 1 and 2). The

reference teaches that the mole ratio of template to Al_2O_3 is preferably in the range of 1-3 (claim 10). The molecular sieve may be formulated with a binder to form a catalyst (claims 23-24).

The reference teaches that suitable templates include templates comprising one or more N,N-dimethylamino moieties having the general structure:

$(CH_3)_2N$-R,

Wherein R is preferably an alkyl group of from 1-12 carbon atoms (claims 2-4).

The instant claims differ from the claims of '278 in that '278 does not claim the use of the specific compounds dialkylbutylamines, specifically, the selection of butyl for R. The reference claims the generic group of compounds, alkyl groups having from 1-12 carbon atoms. The claims differ from the claims of '278 by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species claimed by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

10. Claims 1-4, 7-13, 16-22, 27 and 29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-34 of U.S. Patent No. 6,793,901. Although the conflicting claims are not identical, they are not patentably distinct from each other.

US 6,793,901 claims a method of synthesizing a silicoaluminophosphates molecular sieve of CHA structure type. The process comprises (a) forming a reaction

mixture comprising a source of aluminum, a source of phosphorus, at least one organic template, and optionally, a source of silicon, and (b) inducing crystallization of an aluminophosphates or silicoaluminophosphates molecular sieve (claims 1-3). The molecular sieve may be formulated with a binder to form a catalyst (claims 13-14).

The reference teaches that suitable templates include templates comprising one or more N,N-dimethylamino moieties having the general structure:

$(CH_3)_2N$-R,

Wherein R is preferably an alkyl group of from 1-8 carbon atoms (claims 3-4 and 6-9).

The instant claims differ from the claims of '901 in that '901 does not claim the use of the specific compounds dialkylbutylamines, specifically, the selection of butyl for R. The reference claims the generic group of compounds, alkyl groups having from 1-8 carbon atoms. The claims differ from the claims of '901 by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species claimed by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

Allowable Subject Matter

11. Claims 5-6, 14-15, 23-26, 28, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: regarding claims 5-6, the prior art of record does not teach or suggest a process for preparing a crystalline SAPO, wherein the dialkylbutylamine contains cycloaliphatic R and R' groups, in combination with the other features instantly claimed. Regarding claims 14-15, the prior art of record does not teach or suggest a process for preparing crystalline SAPO, wherein the SAPO is of framework type AEL. Regarding claims 23-26, 28, and 30, the prior art of record does not teach or suggest a SAPO molecular sieve of AEL structure containing within its intra-crystalline structure, one or more tertiary dialkylbutylamines.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Johnson
Patent Examiner
Art Unit 1725
9/21/04

CAJ
September 21, 2004